

WHAT IS CLAIMED IS:

1. An inverted microscope system comprising:  
a microscope main body having an objective lens  
opposed to a sample, a primary image forming optical  
system which forms an intermediate image of the sample  
in cooperation with the objective lens, and focusing  
means for changing a relative distance between the  
sample and the objective lens and forming the  
intermediate image of the sample at a predetermined  
position;

illumination means which is detachable with  
respect to the microscope main body, for generating  
illumination light to the sample; and

an additional unit which is detachable with  
respect to the microscope main body and includes an  
observation tube to observe the intermediate image of  
the sample.

2. The inverted microscope system according to  
claim 1, wherein the additional unit having a relay  
optical system to relay the intermediate image of the  
sample to the observation tube.

3. The inverted microscope system according to  
claim 2, wherein the additional unit further comprising  
an optical element which takes out a part of a beam of  
the intermediate image of the sample relayed by the  
relay optical system, and a port to which image pickup  
means is attached, the image pickup means picking up a

9, 10, 11, 12

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sample image taken out via the optical element.

4. The inverted microscope system according to claim 3, wherein the microscope main body further comprising an optical element<sup>2</sup> which reflects

5 observation light from the sample outgoing from the objective lens in any one of an obliquely upward direction and a horizontal direction, and the intermediate image being formed on an optical path of the light reflected by the optical element.

10 5. The inverted microscope system according to claim 4, wherein the additional unit having a relay optical system to relay the intermediate image of the sample to the observation tube.

15 6. The inverted microscope system according to claim 5, wherein the additional unit further comprising an optical element which takes out a part of a beam of the intermediate image of the sample relayed by the relay optical system, and a port to which image pickup means is attached, the image pickup means picking up a sample image taken out via the optical element.

20 7. The inverted microscope system according to claim 2, wherein the optical element including a first optical element<sup>2</sup> which reflects a beam from the objective lens obliquely upward, and a second optical element which reflects the light in a substantially horizontal direction,

any one of the first optical element and the

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5/4/3/2/1=2/3

6/5/4/3/2/1=3/1

112, 1

$$8/8/2 = 2$$

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9. claim 9,

Microscopical

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Fig. 4

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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$$11/10/2 = 2$$

element.

13. The inverted microscope system according to claim 2, wherein the optical element being detachable.

14. The inverted microscope system according to claim 13, wherein the additional unit having a relay optical system to relay the intermediate image of the sample to the observation tube.

15. The inverted microscope system according to claim 14, wherein the additional unit further comprising an optical element which takes out a part of a beam of the intermediate image of the sample relayed by the relay optical system, and a port to which image pickup means is attached, the image pickup means picking up a sample image taken out via the optical element.

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$\frac{14}{13} \times \frac{5}{2} = 2$